



THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Daisuke KAMIYA

Group Art Unit: 1711

Application No.: 10/505,409

Examiner: Thao T. Tran

Filed: October 24, 2004

Attorney Docket No.: 7378/84103

Confirmation No. 7763

Customer No.: 42798

APPEAL BRIEF

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Sir:

Please enter this Appeal Brief pursuant to 37 C.F.R. §41.37. Appellants appeal from the Final Rejection dated February 27, 2006.

(i) **Real Party in Interest**

Toagosei Co., Ltd. is the real party in interest.

(ii) **Related Appeals and Interferences**

On present information and belief there are no applications, patent(s), appeal(s), interferences, or judicial proceedings known to appellant, appellant's legal representative, or assignee which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(iii) Status of Claims

Claims 1-3, 5-7 and 9-12 are pending.

Claims 1-3 and 5-7 have been rejected and all rejection(s) are being appealed.

Claims 4 and 8 have been canceled.

Claims 9-12 were restricted and are thus withdrawn. Claims 9-12 have not been rejected and are not involved in this appeal.

(iv) Status of Amendments

The Amendment dated June 27, 2006 was filed in response to the Office Action, a final rejection, dated February 27, 2006. All extension fees were paid.

The Advisory Actions dated July 27, 2006 states the Amendment of June 27, 2006 will be entered for purposes of appeal. The "Status of Claims" as presented is intended to be consistent with the Advisory Action.

(v) Summary of Claimed Subject Matter

Appellants summarize the subject matter involved in this appeal.

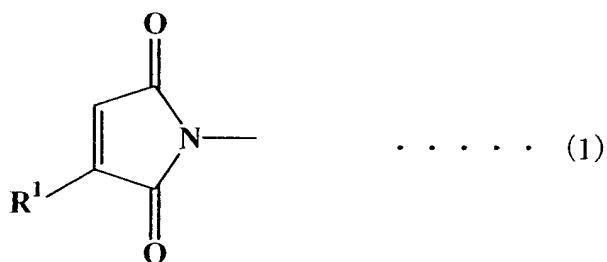
Appellants sought to discover an active energy beam-curable pressure-sensitive adhesive which is liquid at ordinary temperature, has a practical crosslinking property or curablity in the absence of photopolymerization initiators even when irradiated with visible or ultraviolet light, and that provides cured films that do not change color, have excellent water resistance and heat resistance, among other objectives. Specification, page 5, lines 19-26.

Appellants' pressure-sensitive adhesive composition and pressure-sensitive adhesive sheets contain maleimide compounds that are liquid at ordinary temperature. Specification, page 7, lines 22-23. Ordinary temperature can be approximately room temperature, and can be referred to as 25°C. Specification, page 8, lines 2-4.

Since the compounds are liquid at ordinary temperature, it is easier to handle such compounds in coating operations. Specification, page 7, lines 23-24; page 35 lines 23-24.

On the other hand, compounds that are solid at room temperature are not easy to handle, and additionally, lead to a high elastic modulus of the cured film and thus to insufficient adhesive performance. Specification, page 7, line 24 to page 8, line 2.

Accordingly, in an embodiment of the claimed invention, Appellants discovered a pressure-sensitive adhesive curable with an active energy beam, comprising a compound which has two or more maleimide groups represented by the following formula (1) and is *liquid at ordinary temperature*:



where in formula (1) R¹ represents an alkyl group, an aryl group, an arylalkyl group or a halogen atom with the compound having a number average molecular weight of 2,000 to 20,000.

Specification throughout, although pages 6 and 8 are noted as examples.

The molecular weight of the maleimide compound is preferably 2,000 to 20,000 in terms of number average molecular weight. Specification, page 8, lines 5-6.

When the number average molecular weight is less than 2,000, the pressure-sensitive adhesive strength and tackiness of a cured film are lowered. Specification, page 8, lines 8-11.

On the other hand, when the number average molecular weight is too high, the viscosity of the adhesive becomes too high, and the coatability is lowered. Specification, page 8, lines 11-14. These disadvantages arise when the number average weight exceeds 20,000.

In another aspect, in a pressure-sensitive adhesive curable with an active energy beam in accordance with Appellants' invention the specified adhesive is a compound having a polyester skeleton. The compounds having a polyester skeleton are preferred because they are excellent in pressure-sensitive adhesive strength. Specification, page 23, lines 4-6.

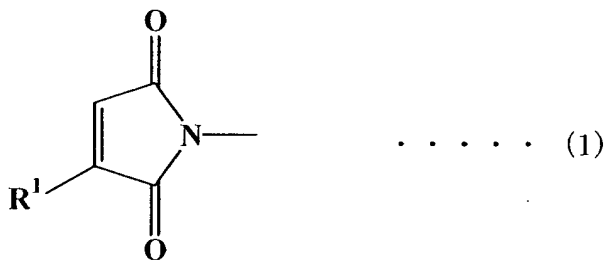
In another aspect of the invention, in a pressure-sensitive adhesive curable with an active energy beam, the compound is one or more selected from the compounds described in the following (1) to (3):

(1) an addition reaction product between a polyester based prepolymer having two or more isocyanate groups at terminals thereof and a compound having a maleimide group and an active hydrogen group;

(2) an esterification reaction product between a polyester based prepolymer having two or more carboxyl groups at terminals thereof and a compound having a maleimide group and an active hydrogen group; and

(3) an esterification reaction product between a polyester based prepolymer having two or more hydroxy groups at terminals thereof and a carboxylic acid having a maleimide group. Specification, page 8, line 21 to page 9, line 14.

In another aspect, as described throughout the specification, an embodiment relates to a pressure-sensitive adhesive sheet that comprises a substrate and a pressure-sensitive adhesive layer formed on the substrate by coating onto the substrate a pressure-sensitive adhesive curable with an active energy beam, and irradiating said coating with an active energy beam to crosslink or cure said coating, in which said pressure-sensitive adhesive comprises a compound which has two or more maleimide groups represented by the following formula (1) and is liquid at ordinary temperature:



where in formula (1), R¹ represents an alkyl group, an aryl group, an arylalkyl group or a halogen atom, and wherein said compound has a number average molecular weight of 2,000 to 20,000.

The specification discloses an exemplary method for producing a pressure-sensitive adhesive sheet. Specification, page 32, *infra*.

In an aspect of the pressure-sensitive adhesive sheet, the compound is a compound having a polyester skeleton. The compounds having a polyester skeleton are preferred because they are excellent in pressure-sensitive adhesive strength. Specification, page 23, lines 4-6.

In an aspect of the pressure-sensitive sheet, the compound is one or more selected from the compounds described in the following (1) to (3):

(1) an addition reaction product between a polyester based prepolymer having two or more isocyanate groups at terminals thereof and a compound having a maleimide group and an active hydrogen group;

(2) an esterification reaction product between a polyester based prepolymer having two or more carboxyl groups at terminals thereof and a compound having a maleimide group and an active hydrogen group; and

(3) an esterification reaction product between a polyester based prepolymer having two or more hydroxy groups at terminals thereof and a carboxylic acid having a maleimide group. Specification throughout, including pages 8-9.

(vi) **Grounds of Rejection to be Reviewed on Appeal**

Appellants appeal from all rejections.

Appellants submit the issues include whether the claims define novel inventions, all as detailed in the Argument Section.

Appellants submit the only issues may be summarized as:

(a) Whether claims 1-3 and 5-7 each defines a novel invention over U.S. Patent No. 6,559,231 B1 (“Hasegawa”)?

(b) Whether claims 1-3 and 5-7 each defines a novel invention over U.S. Patent No. 6,645,617 B1 (“Okazaki”)?

(vii) **Argument**

Appellants' claims define novel inventions over the cited prior art. Appellants respectfully submit neither reference satisfies the standards for anticipation.

To anticipate a claim, a single reference is required to teach every element in the claims. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 U.S.P.Q.2d (BNA) 1051, 1053 (Fed. Cir. 1987). Each and every element as combined in the claims(s) must be described in this single reference. It is impermissible to piece together bits from a reference to negate an applicants' invention under 35 U.S.C. 102. In re Arkley, 455 F.2d 586, 172 U.S.P.Q. (BNA) 524 (C.C.P.A. 1972) ("without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference."). Furthermore, an asserted inherency cannot rest on probabilities or possibilities, but must be the necessary, inevitable result according to the single prior art reference. A possibility that one *might* achieve the invention claimed is not anticipation. In re Arkley, 455 F.2d at 589, 172 U.S.P.Q. (BNA) at 526.

A. **The claims define a novel invention over the Hasegawa reference.**

Applicants submit their claims 1-3 and 5-7 define novel inventions over the Hasegawa reference, U.S. Patent No. 6,559,231B1.

1. **Hasegawa exemplifies coating agents, not energy beam curable adhesive compounds/compositions.**

At the beginning, it appears the rejection requires a selection from the choices presented in the Hasegawa reference.

Hasegawa describes a broad genus of copolymer (I), which is cited in the rejection on appeal. According to the Office Actions herein, a formula at column 2, lines 40-50 in which, for the sake of argument, the disclosed R1 and R2 can be alkyl or hydrogen allegedly anticipates the claims. Appellants point out the formula itself describes, for the sake of argument, cases (i) R1 and R2 are both hydrogen, (ii) R1 is an alkyl and R2 is an alkyl, (iii) one of R1 or R2 is alkyl while the other is hydrogen, or (iv) R1 and R2 form a ring.

Specifically, Hasegawa only exemplifies the case (iv) in the working Examples (see column 18, Formula (11)) for coating agents even though Hasegawa generally discloses various applications (see column 16, lines 24-32).

Appellant's specification describes an embodiment of the present invention in Examples 1-11, and describes results obtained with the structurally divergent copolymer (Hasegawa, case (iv)) at page 42 of the present specification in the Comparative Example 1. Appellants' evidence shows that their exemplified embodiment (Examples 1-11) is superior to the Hasegawa embodiment (case (iv), Comparative Example 1) in SAFT (shear adhesion failure temperature), which is important for pressure sensitive adhesives (see page 47, Table 1 of the present specification).

Hasegawa therefore does not specifically exemplify a pressure-sensitive adhesive composition or a pressure-sensitive adhesive sheet that contains a compound of the formula in which one of R1 and R2 is alkyl and the other hydrogen.

Hasegawa only exemplifies a copolymer that contains the maleimide group falling under the single case (iv) in which R1 and R2 form a ring. Haswgawa's exemplified copolymer is a high molecular weight solid, not a liquid at ordinary temperature.

Even if the 'formula' in Appellants' independent claim 1 and independent claim 5 were teased from the Hasegawa disclosure, the claims are not to a formula but are to a pressure-sensitive adhesive (claim 1) and to a pressure-sensitive adhesive sheet (claim 5) in which the compound recited is liquid at ordinary temperature and has a number average molecular weight of 2,000 to 20,000.¹

2. **Hasegawa teaches solid materials, not liquid materials.**

A liquid material is different than a solid material. The two are not the same. The claimed features giving rise to the difference in physical properties establish novelty. Appellants invite attention to page 5, line 21 and the specification, page 35, last paragraph (the compound having maleimide groups is liquid at ordinary temperature), as examples.

¹ Appellants' submit the difference in physical properties is relevant inasmuch as it refutes what appears to be an inherency argument in the Office Actions. As explained more than a generation ago,

From the standpoint of patent law, a compound and all of its properties are inseparable; they are one and the same thing. The graphic formulae, and the chemical nomenclature, the systems of classification and study such as the concepts of homology, isomerism, etc., are mere symbols by which compounds can be identified, classified, and compared. But a formula is not a compound and while it may serve in a claim to identify what is being patented, as the metes and bounds of a deed identify a plot of land, the thing that is patented is not the formula but the compound identified by it.

In re Papesch, 315 F.2d 381, 391, 137 U.S.P.Q. (BNA) 43, 51 (CCPA 1963).

a. **Appellants' Claims recite the compound is liquid at ordinary temperature.**

Appellants' claims 1-3 relate to a pressure sensitive adhesive in which the maleimide compound is liquid at ordinary temperature. Independent claim 1 recites “[a] pressure-sensitive adhesive curable with an active energy beam, comprising a compound which has two or more maleimide groups represented by the following formula (1) and is liquid at ordinary temperature...” (emphasis added).

Appellants claims 5-7 relate to a pressure sensitive adhesive sheet in which the maleimide compound is liquid at ordinary temperature. Independent claim 5 recites “[a] pressure-sensitive adhesive sheet, comprising a substrate and a pressure-sensitive adhesive layer formed on the substrate by coating onto the substrate a pressure-sensitive adhesive curable with an active energy beam, and irradiating said coating with an active energy beam to crosslink or cure said coating,” and further recites a maleimide compound that is “and is liquid at ordinary temperature.” (emphasis added).

b. **Hasegawa relates to solid not liquid materials.**

Hasegawa relates to and exemplifies solid materials, not liquid materials. Hasegawa appears to disclose that the maleimide copolymer (I) has a number average molecular weight falling in a range of usually 1,000 to 1,000,000 (*see* col. 7, lines 9-12), but the maleimide copolymers disclosed in Hasegawa's working examples are all solid at ordinary temperature.

The Hasegawa maleimide copolymers (I) are described in the Production Examples and their respective the glass transition temperature (T_g) can be calculated on the basis of Table 1 of column 18, as shown below:

Calculation method of Tg:

$$1/T_g = CA/T_{gA} + CB/T_{gB} + \dots + CX/T_{gX}$$

in which CA, CB ---- and CX are weight fractions of components A, B ---- and X respectively, provided that $CA + CB + \dots + CX = 1$, and TgA, TgB ---- and TgX are Tgs (°K) of homopolymers of components A, B ---- and X respectively.

The calculated Tg's of the copolymers A-1, A-2, A-3 and A-4 from Hasegawa's Table 1 are as follows:

	Constituent monomers (parts)						Tg (°C)
	MIA	DAA	BMA	MMA	BA	MA	
A-1	10	5	50	20	14	1	26.6
A-2	10	10	45	20	14	1	29.1
A-3	10	5	50	20	14	1	26.6
A-4	10	0	55	20	14	1	24.1

MIA: Imide acrylate of formula (11) of Hasegawa (65°C (338°K)),

DDA: Diacetoneacrylamide (77°C (350°K)),

BMA: n-Butyl methacrylate (20°C (293°K)),

MMA: Methyl methacrylate (105°C (378°K)),

BA: n-Butyl acrylate (-54°C (219°K)),

MA: Methacrylic acid (130°C (403°K)).

Appellants submit that it appears from the above Table, the Tg's of Hasegawa's copolymers A-1, A-2, A-3 and A-4 are all near ordinary temperature. Thus, Appellants submit the copolymers of the working examples of Hasegawa are not liquid at ordinary temperature.²

² Appellants submit the Office Action has not presented a factual basis for an inherency rejection for the reasons discussed in the main text. There is *no* factual predicate to show Hasegawa disclosed the compound, disclosed the compound is liquid, or, for instance, disclosed that the compound has a number average molecular weight according to Appellant's claims.

3. **Hasegawa does not describe Appellant's claimed molecular weight ranges.**

Appellants' range of number average molecular weight is another claim recitation that establishes novelty over the Hasegawa reference.

a. **Appellants' claims recite a novelty-conferring 2,000 to 20,000 molecular weight range.**

Claims 1 and 5 include a number average molecular weight range that is not described in the Hasegawa reference.

Appellants' independent claim 1 recites "[a] pressure-sensitive adhesive curable with an active energy beam, comprising a compound which has two or more maleimide groups represented by the following formula (1) and is liquid at ordinary temperature..., and wherein said compound has a number average molecular weight of 2,000 to 20,000." (emphasis added).

Appellants' independent claim 5 recites "[a] pressure-sensitive adhesive sheet, comprising a substrate and a pressure-sensitive adhesive layer formed on the substrate by coating onto the substrate a pressure-sensitive adhesive curable with an active energy beam, and irradiating said coating with an active energy beam to crosslink or cure said coating," and further recites a maleimide compound that is "and is liquid at ordinary temperature ..., and wherein said compound has a number average molecular weight of 2,000 to 20,000." (emphasis added).

b. **Hasegawa does not describe the claimed range.**

Hasegawa appears to refer to a number average molecular weight falling in a range of usually 1,000 to 1,000,000 (see col. 7, lines 9-12).

The huge range in Hasegawa should be deemed analogous to the well-established principle that a large chemical genus does not anticipate an unnamed species, nor render it

obvious. Atofina v. Great Lakes Chemical Corp., 441 F.3d 991, 100, 78 U.S.P.Q.2d (BNA) 1417, 1424 (Fed. Cir. 2006) (In reversing the trial court's ruling of anticipation for a narrower range encompassed within a very broad generic range, the court said "there may be many species encompassed within a genus that are not disclosed by a mere disclosure of the genus."); In re Baird, 16 F.3d 380, 382, 29 U.S.P.Q.2d (BNA) 1550, 1552 (Fed. Cir. 1994) ("The fact that a claimed compound may be encompassed by a disclosed generic formula does not by itself render that compound obvious."); In re Jones, 958 F.2d 347, 350, 21 U.S.P.Q.2d (BNA) 1941, 1943 (Fed. Cir. 1992) (rejecting Commissioner's argument that "regardless [of] how broad, a disclosure of a chemical genus renders obvious any species that happens to fall within it").

Moreover, Appellants invite attention to Hasegawa at column 28, Table 1. According to Hasegawa, the copolymers for coating agents produced in Production Examples 1-5 (see Hasegawa, column 18, Table 1) are produced by emulsion polymerization. Such copolymers are usually considered to have a high molecular weight, such as on the order of 500,000 to 1,000,000 in terms of number average molecular weight. Hasegawa's copolymers are not disclosed in Table 1 as having Appellants' claimed number average molecular weight range of about 2,000 to about 20,000. *See, e.g., Atofina, supra.*

In contrast to Hasegawa, and as disclosed in Appellants' specification, when the number average molecular weight is too high, the viscosity of the adhesive becomes too high, and the coatability is lowered. Specification, page 8, lines 11-14.

In short, Hasegawa does not describe the claimed range of about 2,000 to about 20,000.

4. **Hasegawa does not disclose compounds having terminal maleimide groups.**

Appellants' specification describes an aspect of claimed invention in which compounds represented by Appellants' formula 1 possess the maleimide groups at the terminus of the compound. Attention is invited to what are understood to be working Examples of the claimed compounds and description at page 9, lines 1-12. This aspect of the invention is reflected in the claims, including claim 3 as an example.

In contrast, Hasegawa does not disclose product or compounds in which a maleimide group is at a terminal end(s) or the terminus. Rather, Hasegawa discloses polymerizing ethylenically unsaturated monomers having a maleimide group, and thus apparently discloses only polymers that possess the maleimide groups on side chains.

B. **Claims 1-3 and 5-7 Define Novel Inventions over the Okazaki Reference.**

Applicants submit their claims 1-3 and 5-7 define novel inventions over the Okazaki reference, U.S. Patent No. 6,645,617 B1.

Appellants' position is succinctly summarized: Okazaki does not necessarily disclose the compound in which R1 is hydrogen and R2 is an alkyl as in the present Formula (1), does not disclose the compound represented by the present Formula (1) that is liquid at ordinary temperatures, and does not disclose the compound represented by the present Formula (1) has a number average molecular weight of about 2,000 to about 20,000.³

³ Appellants submit the Office Action has not presented a factual basis for an inherency rejection for the reasons discussed in the main text. There is *no* factual predicate to show Okazaki disclosed the compound, disclosed the compound is liquid, or, for instance, disclosed that the compound has a number average molecular weight according to Appellant's claims.

1. Okazaki does not describe the compound in the claims.

At the beginning, it appears the rejection requires a selection from the choices presented in the Okazaki reference.

The Examiner contends Okazaki discloses a pressure sensitive adhesive composition curable with active energy beams which comprises a copolymer obtained from an ethylenically unsaturated monomer having a maleimide group and another ethylenically unsaturated monomer, and a pressure sensitive adhesive sheet formed of the above composition on a substrate.

As in Hasegawa, Okazaki broadly discloses cases (i) in which R1 and R2 are both hydrogen, (ii) R1 is an alkyl and R2 is an alkyl, (iii) one of R1 and R2 is alkyl while the other is hydrogen, or (iv) R1 and R2 form a ring. However, Okazaki does not specifically exemplify a compound as claimed in the present application that has the present Formula (1) in which either of R1 and R2 is hydrogen. See, col. 2, line 33 through col. 3, line 33 of Okazaki. Okazaki generally discloses a Formula (1) but does not restrict it to R1 is hydrogen and R2 is alkyl.

Even if the ‘formula’ in Appellants’ independent claim 1 and independent claim 5 was found in the Okazaki disclosure, the claims are not to a formula but are to a pressure-sensitive adhesive (claim 1) and to a pressure-sensitive adhesive sheet (claim 5) in which the compound recited is liquid at ordinary temperatures and has a number average molecular weight of 2,000 to 20,000.

2. **Okazaki does not disclose the compound is liquid at ordinary temperatures and does not describe Appellant's claimed molecular weight ranges.**

Appellants' independent claims 1 and 5 recite the compound is liquid at ordinary temperatures and has a number average molecular weight of 2,000 to 20,000. Neither claim limitation is expressly or inherently disclosed in Okazaki.

a. **Okazaki refers to solutions, but not to a compound that is liquid at ordinary temperatures.**

Okazaki does not disclose a compound as recited in Appellants' claims that is liquid at ordinary temperatures. Instead, Okazaki discloses making solutions (Examples) and describes a solvent type pressure-sensitive adhesive (column 5, line 45). Solutions and the like can be made using a solvent and dissolving solid materials therein. Therefore, the Okazaki reference does not appear to explicitly disclose or inherently disclose the compound is liquid at ordinary temperatures.

b. **Okazaki does not disclose the molecular weight range.**

The range in Okazaki is of such breadth as to be analogous to the well-grounded principle that a chemical genus does not anticipate an unnamed species, nor render it obvious. Atofina, 441 F.3d at 100, 78 U.S.P.Q.2d (BNA) at 1424 (In reversing the trial court's ruling of anticipation for a narrower range encompassed within a very broad generic range, the court said "there may be many species encompassed within a genus that are not disclosed by a mere disclosure of the genus."); In re Baird, 16 F.3d at 382, 29 U.S.P.Q.2d (BNA) at 1552 ("The fact that a claimed compound may be encompassed by a disclosed generic formula does not by itself render that compound obvious."); In re Jones, 958 F.2d at 350, 21 U.S.P.Q.2d (BNA) at 1943 (rejecting

Commissioner's argument that "regardless [of] how broad, a disclosure of a chemical genus renders obvious any species that happens to fall within it").

Okazaki discloses a broad weight average molecular weight range but does not disclose the the compound has a number average molecular weight of 2,000 to 20,000. Okazaki discloses a broad range of molecular weight between 10,000 and 1,000,000 (see column 5, lines 45-52). Okazaki discloses that the molecular weight of the copolymer is "more preferably 100,000 to 1,000,000 in terms of weight-average molecular weight." Column 5, lines 47-48.

Okazaki does, however, disclose a number average molecular weight (Mn) for copolymers obtained in the working examples (see column 12, Table 1). The copolymers as reported had a number average molecular weight (Mn) of from 40,000 to 52,000.

As disclosed in Appellants' specification, when the number average molecular weight is too high, the viscosity of the adhesive becomes too high, and the coatability is lowered. Specification, page 8, lines 11-14.

In short, Okazaki does not describe the molecular weight range of the present invention.

3. Okazaki does not disclose compounds having terminal maleimide groups.

Appellants' specification describes an aspect of claimed invention in which compounds represented by Appellants' formula 1 possess the maleimide groups at the terminus of the compound. Attention is invited to what are understood to be working Examples of the claimed compounds and description at page 9, lines 1-12. This aspect of the invention is reflected in the claims, including claim 3 as an example.

In contrast, Okazaki does not disclose compounds in which a maleimide group is at a terminal end(s) or the terminus of the compound. Rather, Okazaki discloses polymerizing ethylenically unsaturated monomers having a maleimide group, and thus apparently discloses only polymers that possess the maleimide groups on side chains.

The present claimed inventions are therefore novel over Okazaki.

Conclusion

Appellants respectfully solicit favorable consideration of their Appeal and reversal of all rejections.

Respectfully submitted,

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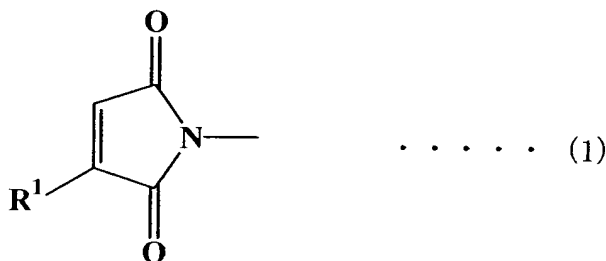
Date: November 17, 2006

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CLAIMS APPENDIX
37 CFR §41.37(c)(1)(viii)

Claim 1 (Appealed, previously presented). A pressure-sensitive adhesive curable with an active energy beam, comprising a compound which has two or more maleimide groups represented by the following formula (1) and is liquid at ordinary temperature:



where in formula (1), R¹ represents an alkyl group, an aryl group, an arylalkyl group or a halogen atom, and wherein said compound has a number average molecular weight of 2,000 to 20,000.

Claim 2 (Appealed, original). A pressure-sensitive adhesive curable with an active energy beam, according to claim 1, in which said compound is a compound having a polyester skeleton.

Claim 3 (Appealed, original). A pressure-sensitive adhesive curable with an active energy beam, according to claim 2, in which said compound is one or more selected from the compounds described in the following (1) to (3):

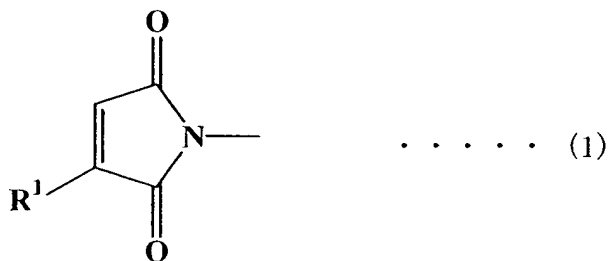
(1) an addition reaction product between a polyester based prepolymer having two or more isocyanate groups at terminals thereof and a compound having a maleimide group and an active hydrogen group;

(2) an esterification reaction product between a polyester based prepolymer having two or more carboxyl groups at terminals thereof and a compound having a maleimide group and an active hydrogen group; and

(3) an esterification reaction product between a polyester based prepolymer having two or more hydroxy groups at terminals thereof and a carboxylic acid having a maleimide group.

Claim 4 (canceled).

Claim 5 (Appealed, previously presented). A pressure-sensitive adhesive sheet, comprising a substrate and a pressure-sensitive adhesive layer formed on the substrate by coating onto the substrate a pressure-sensitive adhesive curable with an active energy beam, and irradiating said coating with an active energy beam to crosslink or cure said coating, in which said pressure-sensitive adhesive comprises a compound which has two or more maleimide groups represented by the following formula (1) and is liquid at ordinary temperature:



where in formula (1), R¹ represents an alkyl group, an aryl group, an arylalkyl group or a halogen atom, and wherein said compound has a number average molecular weight of 2,000 to 20,000.

Claim 6 (Appealed, previously presented). A pressure-sensitive adhesive sheet, according to claim 5, in which said compound is a compound having a polyester skeleton.

Claim 7 (Appealed, previously presented). A pressure-sensitive adhesive sheet, according to claim 6, in which said compound is one or more selected from the compounds described in the following (1) to (3):

(1) an addition reaction product between a polyester based prepolymer having two or more isocyanate groups at terminals thereof and a compound having a maleimide group and an active hydrogen group;

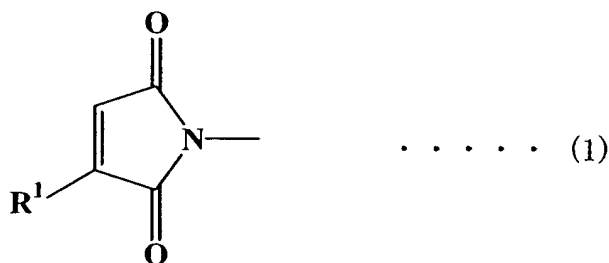
(2) an esterification reaction product between a polyester based prepolymer having two or more carboxyl groups at terminals thereof and a compound having a maleimide group and an active hydrogen group; and

(3) an esterification reaction product between a polyester based prepolymer having two or more hydroxy groups at terminals thereof and a carboxylic acid having a maleimide group.

Claim 8 canceled.

Claim 9 (withdrawn). A method for bonding articles, which comprises coating an article with an active energy beam curable adhesive, irradiating the coated adhesive with an active energy beam to form a pressure sensitive adhesive layer on the article, and pressing another

article onto the pressure sensitive adhesive layer, in which said active energy beam curable adhesive comprises a compound which has two or more maleimide groups represented by the following formula (1) and is liquid at ordinary temperature:



where in formula (1), R¹ represents an alkyl group, an aryl group, an arylalkyl group or a halogen atom.

Claim 10 (withdrawn). The bonding method according to claim 9, in which said compound is a compound having a polyester skeleton.

Claim 11 (withdrawn). The bonding method according to claim 10, in which said compound is one or more selected from the compounds described in the following (1) to (3):

(1) an addition reaction product between a polyester based prepolymer having two or more isocyanate groups at terminals thereof and a compound having a maleimide group and an active hydrogen group;

(2) an esterification reaction product between a polyester based prepolymer having two or more carboxyl groups at terminals thereof and a compound having a maleimide group and an active hydrogen group; and

(3) an esterification reaction product between a polyester based prepolymer having two or more hydroxyl groups at terminals thereof and a carboxylic acid having a maleimide group.

Claim 12 (withdrawn). The bonding method according to any one of claims 9 to 11, in which said compound is one having a number average molecular weight of 2,000 to 20,000.

Appeal Brief
Application No. 10/505,409

Atty. Docket No. 7378/84103

EVIDENCE APPENDIX
37 CFR §41.37(c)(1)(ix)

Appellant is not relying on additional evidence submitted pursuant to 37 CFR §§1.130, 1.13 or 1.132.

Appeal Brief
Application No. 10/505,409

Atty. Docket No. 7378/84103

RELATED PROCEEDINGS APPENDIX
37 CFR §41.37(c)(1)(x)

None.